

REMARKS

Claims 1-10 are pending and stand ready for further action in the merits. Claim 1 has been amended to clarify the invention. Support for new claim 8 can be found at page 34, lines 9-15. Support for new claim 9 can be found at page 9, lines 11-12. Support for new claim 10 can be found at page 11, line 21. No new matter has been added by the above-amendment. The above-amendment does not narrow the scope of the invention and/or has not been made for the sake of patentability.

Issues under 35 U.S.C. 112, 2nd paragraph

Claims 1-7 are rejected under 35 U.S.C. 112, 2nd paragraph for being indefinite. Applicants respectfully traverse the rejection.

The Examiner objects to the word “type” in claim 1. In response, Applicants have followed the Examiner’s suggestion of deleting the word “type” from claim 1.

Also, the Examiner objects to claim 1 for reciting the phrase “formed in this order” at line 4. Specifically, the Examiner has taken the position that this phrase requires that the layers of claim 1 are formed in the following order: 1) the lower non-magnetic layer; 2) the upper magnetic; and then 3) the intermediate binder layer. In response, Applicants have amended claim 1 by replacing the phrase “which are formed in this order on a surface” with “wherein the lower non-magnetic layer is formed on a surface”.

As such, Applicants respectfully submit that claims 1-7 particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Accordingly, withdrawal of the rejection is respectfully requested.

Eichorst USP 5,726,001 and Kolb et al. USP 6,733,906

Claims 1-4, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eichorst in view of Kolb et al. Applicants respectfully traverse the rejection.

Applicants respectfully submit that claim 1 is patentable, since Eichorst fails to teach or fairly suggest that the composite support for imaging elements has a squareness ratio of the

upper magnetic layer in the lengthwise direction is 0.8 or more (hereinafter "SQUARENESS RATIO"). The present specification teaches that the advantage of magnetic tapes having the inventive SQUARENESS RATIO, is that the recording demagnetization due to thermal agitation is minimized, see page 17, lines 7-9.

Applicants note that Eichorst is silent with respect to the SQUARENESS RATIO. Accordingly, the Examiner appears to be relying on Kolb et al for the notion that it would be obvious to modify the composite support for imaging elements of Eichorst to have a SQUARENESS RATIO. However, Applicants respectfully submit that such a position is untenable, since the teachings of Eichorst relate to photographic materials. As such, the reduction in recording demagnetization due to thermal agitation of the magnetic layer is not an issue for Eichorst. Accordingly, the skilled artisan would not be motivated to look to Kolb et al.

Applicants respectfully submit that the Examiner has not made a *prima facie* case of obviousness. An obviousness rejection based on more than one reference is only proper when a skilled artisan would be motivated to look to the teachings of the secondary reference(s) in order to modify the teachings of the primary reference. Here, the skilled artisan would not be motivated to look to the teachings of Kolb et al. in order to modify the teachings of Eichorst in view of the fact that the two references are in different fields of endeavor. Eichorst teaches that the composite support is useful as imaging elements, see column 6, lines 13-37. Whereas Kolb et al. teach that the product is useful in magnetic tapes and diskettes.

Applicants note that the MPEP 2143.01 is clear that the combination of references in two diverse areas of technology is improper in the analysis under 35 USC 103. The MPEP cites to two cases in support of this position, *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In *Fine*, the claims were directed to a system for detecting and measuring minute quantities on nitrogen compounds comprising a gas chromatograph, a converter which converts nitrogen compounds into nitric oxide by combustion, and a nitric oxide detector. The primary reference disclosed a system for monitoring sulfur compounds comprising a chromatograph, combustion means, and a detector, and the secondary reference taught nitric oxide detectors. The

examiner and Board asserted that it would have been within the skill of the art to substitute one type of detector for another in the system of the primary reference, however the court found there was no support or explanation of this conclusion and reversed.

In *Jones*, the claimed invention was the 2-(2'-aminoethoxy) ethanol salt of dicamba, a compound with herbicidal activity. The primary reference disclosed *inter alia* the substituted ammonium salts of dicamba as herbicides, however the reference did not specifically teach the claimed salt. Secondary references teaching the amine portion of the salt were directed to shampoo additives and a byproduct of the production of morpholine. The court found there was no suggestion to combine these references to arrive at the claimed invention.

In the instant case, Applicants note that the Examiner appears to be picking and choosing certain features described in the magnetic tapes and diskettes of Kolb et al. to combine with the features of the composite support useful as imaging elements of Eichorst without explanation as to why the skilled artisan would do so absent Applicants' specification as a guide. The court in *In re Dembiczak*, 50 U.S.P.Q.2d 1614 (CAFC 1999) clearly explained that the obviousness analysis should include an identification of the suggestion, teaching, and motivation to combine the references, and the specific and inferential findings concerning identification of relevant art, level of ordinary skill in art, nature of problem to be solved, and any other factual findings that supports the obviousness conclusion.

Based on the foregoing, Applicants respectfully request that the rejection be withdrawn.

On a side matter, Applicants respectfully submit that claims 2, 6 and 7 are patentable over the combination of Eichorst and Kolb et al., since the combination of Eichorst and Kolb et al fails to teach or fairly suggest that the composite support for imaging elements has:

- 1) either the ratio of PV_t to the average dry thickness d of the upper magnetic layer (PV_t/d) or the ratio of PV_m to the average dry thickness d of the upper magnetic layer (PV_m/d) is less than 0.5, provided that the maximum value of the fluctuation at the interface between the upper magnetic layer and the intermediate binder layer measured along the widthwise direction is PV_t , and that the maximum value of the fluctuation at the interface between the upper magnetic

layer and the intermediate binder layer measured along the lengthwise direction is PVm (see inventive claim 2, hereinafter "FLUCTUATION RATIOS")

- 2) a center line average height of the surface of the upper magnetic layer of 5 nm or less (see inventive claim 6, hereinafter "Ra RANGE"); and
- 3) a residual magnetic flux density of the upper magnetic layer is 0.3T (3,000 G) or more (see inventive claim 7, hereinafter "Br RANGE").

The present specification teaches that the FLUCTUATION RATIOS give the magnetic tape a smooth interface between the upper magnetic layer and the intermediate binder layer, thereby avoiding sudden deterioration in electromagnetic conversion, see page 20, lines 5-7. Also, the present specification teaches that when the Ra exceeds 5 nm, the spacing between the magnetic head and the medium increases, so that sufficient reproducing output cannot be obtained, see page 8, line 28 to page 9, line 2. In addition, the present specification teaches that when Br is less than 0.3T, a leakage flux from the magnetic recording medium becomes smaller. As a result, sufficient reproducing output cannot be obtained, see page 9, lines 10-12.

In view of the fact that the FLUCTUATION RATIOS, the Ra RANGE and the Br RANGE are unique characteristics of magnetic tape there would be no motivation for the artisan to modify the composite support useful as imaging elements of Eichorst to have these features. For similar reasons as described above for the patentability of claim 1, Applicants respectfully submit that claims 2, 6 and 7 are patentable over the combination of Eichorst and Kolb et al.

Shibata et al. JP 05-290353 and Kolb et al.

Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibata et al. in view of Kolb et al. Applicants respectfully traverse the rejection.

Applicants respectfully submit that Shibata et al. fail to teach or fairly suggest an intermediate layer having a thickness within the range of "10 to less than 50nm" as described in inventive claim 1. The Examiner appears to be equating element 22 of Figure 4 of Shibata et al. with the instant intermediate layer, and yet Shibata et al. teach that the thickness of the intermediate layer is 100-800nm, which is outside the inventive range of "10 to less than 50nm".

However, the Examiner appears to have taken into consideration that the thickness of the intermediate layer of Shibata et al. is outside the inventive range in the third full paragraph on page 4 of the outstanding Office Action. The Examiner states that modifying the thickness would be obvious to the skilled artisan in order to maximize the length of the tape that can be wound on a given diameter reel.

Applicants respectfully disagree with the Examiner that maximizing the length of tape that can be wound on a given diameter reel would in and of itself provide motivation to the skilled artisan to pick out element 22 of Figure 4 of Shibata et al. and reduce the thickness of element 22. Certainly considerations as to whether the thinning of the layer would reduce its effectiveness would have to be taken into account. If such a goal of maximizing the length of tape is such a driving force in the industry as the Examiner makes it out to be, then the skilled artisan would give great credence to the fact that Shibata et al. DID place a minimum thickness of 100nm on element 22 despite this great driving force to increase tape length. Accordingly, the skilled artisan would be in a position of believing that the reduction in thickness of element 22 to below 100nm would be detrimental to the function of the magnetic tape, and as such, would not be motivated to reduce the thickness of element 22.

In view of the fact that Kolb et al. does not cure the deficiency of Shibata et al., Applicants respectfully submit that the presently claimed magnetic tape is not made obvious by the combination of Kolb et al. and Shibata et al. under 35 USC 103(a) and withdrawal of the rejection is respectfully requested.

Furthermore, even assuming *arguendo* that the presently claimed magnetic tape is made obvious by the combination of Kolb et al. and Shibata et al. under 35 USC 103(a), Applicants respectfully submit that the current experimental evidence of record shows that the inventive magnetic tape having an intermediate layer having a thickness within the inventive range of "10 to less than 50nm" has ***unexpectedly*** superior properties to the magnetic tape having an intermediate layer having a thickness outside the inventive range.

As described in the specification at page 6, lines 5-16, it was the present inventors who were the first to ascertain that the magnetic tape of Shibata et al. has an undesirable fluctuation at

the interface between the upper magnetic layer and the intermediate layer in view of its high thickness of 100-800 nm.

As evidence of the unexpectedly superior properties of the inventive magnetic tape, the Examiner's attention is directed to Inventive Example 1 and Comparative Example 5 in the present specification. The computer tape of Inventive Example 1 and the computer tape of Comparative Example 5 were prepared in essentially the same manner except that the thickness of the intermediate layer of Inventive Example 1 was 10 nm whereas the thickness of the intermediate layer of Comparative Example 5 was 120 nm. The data relating to the fluctuation at the interface relative to thickness (PVt/d and PVm/d) and the output to noise (C/N) for the computer tapes is provided in Table 2 on page 46 of the specification and is reproduced below.

	Thickness of Intermediate Layer	PVt/d	PVm/d	C/N (dB)
Ex. 1	10 nm	0.43	0.49	-0.1
C. Ex. 5	120 nm	0.52	0.57	-0.4

The data shows that the fluctuation at the interface relative to thickness (PVt/d and PVm/d) increased dramatically even though the change in thickness from the computer tape of Inventive Example 1 and the computer tape of Comparative Example 5 is accounted for in the ratios. Also, the output to noise (C/N) ratio dramatically decreased with increasing thickness of the intermediate layer.

Applicants respectfully submit that such an improvement would be unexpected to the skilled artisan. As such, even assuming that the presently claimed magnetic tape is made obvious by the combination of Kolb et al. and Shibata et al. under 35 USC 103(a), which it is not, Applicants respectfully submit that the current experimental evidence of record shows that the inventive magnetic tape having an intermediate layer having a thickness within the inventive

range of "10 to less than 50nm" has *unexpectedly* superior properties to the magnetic tape having an intermediate layer having a thickness outside the inventive range. Accordingly, the *prima facie* case is rendered untenable.

Lastly, Applicants note that the Examiner has stated that it would be obvious to one of ordinary skill to minimize the surface roughness of the magnetic layer as described in claim 6 and to maximize the residual magnetic flux density as described in claim 7. The Examiner states that optimizing these values are known in the art. Applicants respectfully challenge the Examiner's statement, and **request evidence** that it would be obvious to minimize the surface roughness of the magnetic layer as described in claim 6 and to maximize the residual magnetic flux density as described in claim 7, see MPEP 2144.03. Without such evidence, Applicants maintain that the instantly claimed invention is nonobvious over Kolb et al. and Shibata et al., and withdrawal of the rejection with respect to claims 6 and 7 is respectfully requested.

Conclusion

The present application well-describes and claims patentable subject matter. The favorable action of allowance of the pending claims and passage of the application to issue is respectfully requested.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Garth M. Dahlen, Ph.D., Esq. (Reg.

Application No. 10/507,133
Amendment dated December 28, 2005
Reply to Office Action of October 3, 2005

Docket No.: 0020-5295PUS1

No. 43,575) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

Dated: December 28, 2005

Respectfully submitted,

By 

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